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Experimental Reproduction of Joint Sprains.

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The object of the work was to study the histological changes in the soft structures and bone at varying periods of time after experimentally produced joint sprain and to determine the rate of healing.

Six rabbits were used in the development of the method. Varying amounts of manual force were used on both ankle joints or both knee joints. The animals were killed immediately afterward and the extent of injury to the soft structures was determined by gross examination. In this way it was discovered how to produce a simple sprain without fracture. Sprains were produced thus on 12 rabbits. From 1 to 6 weeks later, the animals were sacrificed and autopsied. The joints were removed and examined grossly and microscopically.

One week after the sprain, there was definite swelling of the joints, especially marked at the site of injury. There, the synovial membrane was thickened and oedematous with a few dilated blood vessels near its surface. The joint fluid was increased in amount, more viscid and yellow than normal. There was slight pannus formation at the osteo-cartilaginous junctions on the injured side of the joint. The subcutaneous tissue and the loose connective tissue of the mesotendons showed evidence of old hemorrhage. There was no blood within any of the tendon sheaths. Microscopic sections showed hemorrhage into and under the synovial membrane. The synovial cells had marked vacuolization. The subsynovial tissue was edematous, with capillary congestion, early fibroblastic proliferation and considerable leukocytic and lymphoid cell infiltration. In places the surface of the synovial membrane was covered with

fibrin, while in others the fibrin was seen in the subsynovial tissues. Near the attachments to the bone, the injured capsule and ligaments showed similar changes consisting of oedema, fibroblastic proliferation and lymphoid-cell infiltration. The loose connective tissue beneath the synovial lining of the tendon sheaths presented a picture essentially the same as that seen in the joint synovia.

At 2, and 3 weeks there were still definite signs of acute inflammation of the synovial tissue as evidenced by swelling and by leucocytic and lymphoid-cell infiltration. There was great increase of the fibroblasts in the subsynovial tissue. Hemosiderin pigment also was found in large amounts in the phagocytic cells of the inflamed area. At this stage hyalinized masses of fibrin were seen within the synovial tissue and on the synovial surface. The tendon sheaths and the soft tissue surrounding the capsule and ligaments showed changes similar to those which were found after 1 week, except that there was more marked fibroblastic proliferation.

After 4 weeks, there was no external evidence of swelling or other signs of old injury. Microscopic examination of the tendon sheaths, synovial tissue, and ligaments still showed evidence of old hemorrhage. The number of fibroblasts was decreased, but the number of intercellular collagen fibers was increased. Many small capillaries were seen in this young connective tissue. In certain places the synovial membrane showed small foci of degeneration. There was still considerable oedema of the loose connective tissue but the infiltration with leukocytes and lymphoid cells was much less than that shown in the sections taken after 3 weeks.

Microscopic examination at 6 weeks showed complete healing of the traumatized parts. There was a late stage of fibrosis with shrinkage and contraction of the connective tissue structures.

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Phenolphthalein Starch Medium for Rapid Isolation of V. Cholerae.

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Among the various media that have been advocated for rapid isolation of *V. cholerae,* the most widely used is the alkaline peptone enrichment medium which, however, is by no means perfect. Dur-